that the claims that are being added by the reissue application, namely claims 36 to 58, be applied to the drawings of the application.

Applicants therefore apply claims 36-58 to the drawings of the reissue application as follows:

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36. An optical scanner comprising:

a housing {**Figs. 1 and 2, item 32; Fig. 4**} having a substantially vertical surface containing a first aperture {**Figs. 1 and 2, item 30**} and a substantially horizontal surface containing a second aperture {**Figs. 1 and 2, item 28**};

a single laser {**Figs. 1 and 4, item 12**} which produces a laser beam {**Fig. 1, item 22**} within the housing;

a plurality of groups of pattern mirrors {**Fig. 3, items 50 to 106**};

a polygon spinner {**Figs. 1, 3 and 4, item 16**} having mirrored facets {**Fig. 3, items 108 to 114**} receiving the laser beam and rotating to reflect the laser beam in a plurality of directions as the spinner rotates,

the reflected laser beam striking the pattern mirrors to produce a plurality of scanning beams including a first group of scanning beams, a second group of scanning beams, and a third group of scanning beams;

a first group of pattern mirrors {**Fig. 3, items 62, 64, 66, 68, 70, 72, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104 and 106**} reflecting the first group of

scanning beams through the first aperture to produce a first scan pattern consisting of a plurality of intersecting scan lines {**Fig. 7**} and for reflecting the second group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a second scan pattern consisting of a plurality of intersecting scan lines {**Fig. 8**};

a second group of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**} reflecting the third group of scanning beams through the second aperture {**Figs. 1 and 2, item 28**} to produce a third scan pattern consisting of a plurality of intersecting scan lines {**Fig. 6**}; and

the reflected laser beam from the spinner alternatingly striking at least one pattern mirror of the first group {**Fig. 3, item 70**} and then at least one pattern mirror of the second group {**Fig. 3, item 58**}, and repeating this alternating operation multiple times {**Fig. 3, items 70 to 58, 58 to 64, 64 to 50, 56 to 66, 66 to 60 and 60 to 72**} as the beam is reflected from a single facet {**Fig. 3, facet 112**} of the spinner during a single rotation of the spinner, to reflect scanning beams alternatingly and repetitively through the first {**Figs. 1 and 2, item 30**} and second apertures {**Figs. 1 and 2, item 28**} as the spinner rotates a single rotation.

37. An optical scanner comprising:

a housing {**Figs. 1 and 2, item 32; Fig. 4**} having a substantially vertical surface containing a first aperture {**Figs. 1 and 2, item 30**} and a substantially horizontal surface containing a second aperture {**Figs. 1 and 2, item 28**};

a single laser {**Figs. 1 and 4, item 12**} which produces a laser beam {**Fig. 1, item 22**} within the housing;

a plurality of groups of pattern mirrors {**Fig. 3, items 50 to 106**};

a polygon spinner {**Figs. 1, 3 and 4, item 16**} having mirrored facets {**Fig. 3, items 108 to 114**} receiving the laser beam {**Fig. 1, item 22**} and rotating to reflect the laser beam in a plurality of directions as the spinner rotates, to cause the beam to strike the pattern mirrors to produce a plurality of scanning beams including a first group of scanning beams, a second group of scanning beams, and a third group of scanning beams;

a first group of pattern mirrors {**Fig. 3, items 62, 64, 66, 68, 70, 72, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104 and 106**} reflecting the first group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a first scan pattern consisting of a plurality of intersecting scan lines {**Fig. 8**} and for reflecting the second group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a second scan pattern

{**Fig. 7**} consisting of a plurality of intersecting scan lines; and

a second group of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**} reflecting the third group of scanning beams through the second aperture {**Figs. 1 and 2, item 28**} to produce a third scan pattern {**Fig. 6**} consisting of a plurality of intersecting scan lines;

the first group of pattern mirrors including a plurality of pattern mirrors {**Fig. 3, items 64, 66, 70 and 72**} spaced apart from one another and located between the polygon spinner {**Fig. 3, item 16**} and the second group of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**}, and

the polygon spinner directing the laser beam alternatingly at the pattern mirrors of the first group that are spaced apart {**Fig. 3, items 64, 66, 70 and 72**} and through the spaces between those pattern mirrors to reach the pattern mirrors of the second group {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**} as the polygon spinner rotates.

38. An optical scanner as in claim 37, wherein:

the pattern mirrors of the first group that are spaced apart {**Fig. 3, items 64, 66, 70 and 72**} reflect the beams to other pattern mirrors {**Fig. 3, items 80, 82, 84, 86,**

88, 90, 92, 94, 100, 104 and 106} and then through the first aperture {**Figs. 1 and 2, item 30**}.

39. An optical scanner comprising:

a housing {**Figs. 1 and 2, item 32; Fig. 4**} having a substantially vertical surface containing a first aperture {**Figs. 1 and 2, item 30**} and a substantially horizontal surface containing a second aperture {**Figs. 1 and 2, item 28**};

a single laser {**Figs. 1 and 4, item 12**} which produces a laser beam {**Fig. 1, item 22**} within the housing;

a plurality of groups of pattern mirrors {**Fig. 3, items 50 to 106**};

a polygon spinner {**Figs. 1, 3 and 4, item 16**} having mirrored facets {**Fig. 3, items 108 to 114**} receiving the laser beam and rotating to reflect the laser beam in a plurality of directions as the spinner rotates to cause the beam to strike at least certain of the pattern mirrors to produce a plurality of scanning beams including a first group of scanning beams, a second group of scanning beams, and a third group of scanning beams;

a first group of pattern mirrors {**Fig. 3, items 62, 64, 66, 68, 70, 72, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104 and 106**} for reflecting the first group of scanning beams through the first aperture to produce a first scan pattern consisting of a plurality of intersecting scan

lines {**Fig. 8**} and for reflecting the second group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a second scan pattern consisting of a plurality of intersecting scan lines {**Fig. 7**}; and

a second group of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**} for reflecting the third group of scanning beams through the second aperture {**Figs. 1 and 2, item 28**} to produce a third scan pattern consisting of a plurality of intersecting scan lines {**Fig. 6**};

wherein each of at least two facets {**Fig. 3, items 112 and 114**} of the polygon spinner directs the laser beam {**Fig. 1, item 22**} alternatingly multiple times, during each rotation of the polygon spinner, to at least one pattern mirror of the first group and then to at least one pattern mirror of the second group {**Fig. 3, items 80 to 78, 84 to 76 and 90 to 74**}, to reflect the laser beam alternatingly through the first and second apertures {**Figs. 1 and 2, items 30 and 28**} multiple times as the polygon spinner rotates a single rotation.

40. An optical scanner for scanning at least the top, bottom and three sides of an article comprising:

a housing {**Figs. 1 and 2, item 32; Fig. 4**} having a substantially vertical surface containing a first aperture

{**Figs. 1 and 2, item 30**} and a substantially horizontal surface containing a second aperture {**Figs. 1 and 2, item 28**};

a single laser {**Figs. 1 and 4, item 12**} which produces a laser beam {**Fig. 1, item 22**} within the housing;

a plurality of groups of pattern mirrors {**Fig. 3, items 50 to 106**};

a polygon spinner {**Figs. 1, 3 and 4, item 16**} having mirrored facets receiving the laser beam {**Figs. 1 and 4, item 12**} and rotating to reflect the laser beam to produce a single reflected beam directed in a plurality of directions as the spinner rotates, to produce a plurality of scanning beams including a first group of scanning beams, a second group of scanning beams, and a third group of scanning beams; and

a first group of pattern mirrors {**Fig. 3, items 62 to 72 and 80 to 106**} reflecting the first group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a first scan pattern {**Fig. 8**} consisting of a plurality of intersecting scan lines and for reflecting the second group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a second scan pattern {**Fig. 7**} consisting of a plurality of intersecting scan lines;

the first group of pattern mirrors {**Fig. 3, items 64, 66, 70, 72, 82, 84, 86, 88, 90, 94, 102 and 104**} including mirrors positioned adjacent to first aperture {**Figs. 1 and 2, item 30**}, at least one of which {**Fig. 3, item 104**} is

angled to reflect scanning beams of the first group outwardly and downwardly {**Fig. 8**} to scan the top of an article {**Fig. 1, item 36**}, and other mirrors {**Fig. 3, items 70, 72, 80, 92, 100 and 106**} angled to reflect scanning beams of the second group diagonally laterally {**Fig. 7**} to scan the leading and trailing sides of the article {**Fig. 1, item 36**}; and

a second group of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**} reflecting the third group of scanning beams through the second aperture {**Figs. 1 and 2, item 28**} to produce a third scan pattern {**Fig. 6**} consisting of a plurality of intersecting scan lines;

the first group of pattern mirrors including a plurality of pattern mirrors {**Fig. 3, items 64, 66, 70 and 72**} spaced apart from one another and located between the polygon spinner {**Fig. 3, item 16**} and the second group of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**}.

41. An optical scanner comprising:

a housing {**Figs. 1 and 2, item 32; Fig. 4**} having a substantially vertical surface containing a first aperture {**Figs. 1 and 2, item 30**} and a substantially horizontal surface containing a second aperture {**Figs. 1 and 2, item 28**};

a single laser {**Figs. 1 and 4, item 12**} which produces a laser beam {**Fig. 1, item 22**} within the housing;

a plurality of groups of pattern mirrors {**Fig. 3, items 50 to 106**};

a polygon spinner {**Figs. 1, 3 and 4, item 16**} having mirrored facets {**Fig. 3, items 108 to 114**} for reflecting the laser beam {**Fig. 1, item 22**} to produce a single reflected beam in a plurality of directions as the spinner rotates to cause the beam to strike at least some of the pattern mirrors, to produce a plurality of scanning beams including a first group of scanning beams, a second group of scanning beams, and a third group of scanning beams; and

a first group of pattern mirrors {**Fig. 3, items 64, 66, 70, 72, 82, 84, 86, 88, 90, 94 and 104**} including a first, second and third subsets of pattern mirrors for reflecting the first group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a first scan pattern {**Fig. 8**} consisting of a plurality of intersecting scan lines,

a second group of pattern mirrors {**Fig. 3, items 62, 68, 70, 72, 80, 92, 96, 98, 100, 102 and 106**} including a first, second and third subsets of pattern mirrors reflecting the second group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a second scan pattern {**Fig. 7**} consisting of a plurality of intersecting scan lines; and

a third group of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**} for reflecting the third group of scanning beams through the second aperture {**Figs. 1 and 2, item 28**} to produce a third scan pattern {**Fig. 6**} consisting of a plurality of intersecting scan lines;

the first group of scanning beams reflecting off multiple mirrors of the first subset of pattern mirrors {**Fig. 3, items 64, 66, 70 and 72**} of the first group to the second subset thereof, then reflecting off multiple mirrors of said second subset {**Fig. 3, items 82, 84, 86, 88, 90 and 94**} to the third subset thereof, and then off at least one mirror of said third subset {**Fig. 3, item 104**} out the first aperture {**Figs. 1 and 2, item 30**},

the second group of scanning beams reflecting off multiple mirrors of the first subset of pattern mirrors {**Fig. 3, items 62, 68, 70 and 72**} of the first group to the second subset thereof, then reflecting off multiple mirrors of said second subset {**Fig. 3, items 80, 92, 96 and 98**} to the third subset thereof, and then off at least one mirror of said third subset {**Fig. 3, items 100, 102 and 106**} out the first aperture {**Figs. 1 and 2, item 30**}.

42. An optical scanner as in claim 41, wherein

the third subset of mirrors {**Fig. 3, items 100, 102 and 106**} in the second group includes multiple mirrors and the

scanning beams from the second subset {**Fig. 3, items 80, 92, 96 and 98**} of the second group reflect off multiple mirrors of the second group and then pass out the first aperture {**Figs. 1 and 2, item 30**}.

43. An optical scanner comprising:

a housing {**Figs. 1 and 2, item 32; Fig. 4**} having a substantially vertical surface containing a first aperture {**Figs. 1 and 2, item 30**} and a substantially horizontal surface containing a second aperture {**Figs. 1 and 2, item 28**};

a single laser {**Figs. 1 and 4, item 12**} which produces a laser beam {**Fig. 1, item 22**} within the housing;

a plurality of groups of pattern mirrors {**Fig. 3, items 50 to 106**};

a polygon spinner {**Figs. 1, 3 and 4, item 16**} having mirrored facets {**Fig. 3, items 108 to 114**} for reflecting the laser beam in a plurality of directions as the spinner rotates to produce a plurality of scanning beams including a first group of scanning beams, a second group of scanning beams, and a third group of scanning beams; and

a first group of pattern mirrors {**Fig. 3, items 64, 66, 70, 72, 82, 84, 86, 88, 90, 94 and 104**} including a first, second and third subsets of pattern mirrors for reflecting the first group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a first scan

pattern {**Fig. 8**} consisting of a plurality of intersecting scan lines,

a second group of pattern mirrors {**Fig. 3, items 62, 68, 70, 72, 80, 92, 96, 98, 100, 102 and 106**} including a first, second and third subsets of pattern mirrors reflecting the second group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a second scan pattern {**Fig. 7**} consisting of a plurality of intersecting scan lines; and

a third group of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**} for reflecting the third group of scanning beams through the second aperture {**Figs. 1 and 2, item 28**} to produce a third scan pattern {**Fig. 6**} consisting of a plurality of intersecting scan lines;

the first group of scanning beams reflecting off the first subset of pattern mirrors {**Fig. 3, items 64, 66, 70 and 72**} of the first group to the second subset thereof, then reflecting off said second subset {**Fig. 3, items 82, 84, 86, 88, 90 and 94**} to the third subset thereof, and then off said third subset {**Fig. 3, item 104**} out the first aperture {**Figs. 1 and 2, item 30**},

the second group of scanning beams reflecting off the first subset of pattern mirrors {**Fig. 3, items 62, 68, 70 and 72**} of the first group to the second subset thereof, then reflecting off said second subset {**Fig. 3, items 80, 92, 96**

and 98} to the third subset thereof, and then off said third subset {**Fig. 3, items 100, 102 and 106**} out the first aperture {**Figs. 1 and 2, item 30**},

at least one of the mirrors of the first group of pattern mirrors {**Fig. 3, item 102**} being positioned adjacent the first aperture {**Figs. 1 and 2, item 30**} to reflect certain of the first group of scanning beams outwardly through the first aperture {**Figs. 1 and 2, item 30**} to scan the side of an article {**Fig. 1, item 36**},

at least one of the mirror of the first group of pattern mirrors {**Fig. 3, item 100**} being positioned adjacent the first aperture {**Figs. 1 and 2, item 30**} and angled to reflect certain of the first group of scanning beams outwardly and laterally through the first aperture {**Figs. 1 and 2, item 30**} toward the front of the article, and at least one {**Fig. 3, item 106**} positioned adjacent the first aperture {**Figs. 1 and 2, item 30**} and angled to reflect certain of the first group of scanning beams outward and laterally through the first aperture {**Figs. 1 and 2, item 30**} to scan the rear of the article, and

at least one of the mirrors of the first group of pattern mirrors {**Fig. 3, item 104**} being positioned adjacent the first aperture {**Figs. 1 and 2, item 30**} and angled to reflect certain of the first group of scanning beams

downwardly and outwardly through the first aperture {**Figs. 1 and 2, item 30**} to scan the top of an article.

44. An optical scanner comprising:

a housing {**Figs. 1 and 2, item 32; Fig. 4**} having a substantially vertical surface containing a first aperture {**Figs. 1 and 2, item 30**} and a substantially horizontal surface containing a second aperture {**Figs. 1 and 2, item 28**};

a single laser {**Figs. 1 and 4, item 12**} which produces a laser beam {**Figs. 1, item 22**} within the housing;

a plurality of pattern mirrors, including a plurality of groups of pattern mirrors {**Fig. 3, items 50 to 106**};

a polygon spinner {**Figs. 1, 3 and 4, item 16**} having mirrored facets {**Fig. 3, items 108 to 114**} receiving the laser beam {**Fig. 1, item 22**} and rotating to reflect the laser beam to produce a single reflected beam directed in a plurality of directions as the spinner rotates, the reflected beam striking the pattern mirrors to produce a plurality of scanning beams, including a first group of scanning beams, a second group of scanning beams, and a third group of scanning beams; and

a first group of pattern mirrors {**Fig. 3, items 62, 64, 66, 68, 70, 72, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104 and 106**} reflecting the first group of scanning beams through the first aperture {**Figs. 1 and 2, item**

30} to produce a first scan pattern consisting of a plurality of intersecting scan lines {**Fig. 8**} and for reflecting the second group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a second scan pattern {**Fig. 7**} consisting of a plurality of intersecting scan lines; and

a second group of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**} reflecting the third group of scanning beams through the second aperture {**Figs. 1 and 2, item 28**} to produce a third scan pattern {**Fig. 6**} consisting of a plurality of intersecting scan lines;

the first group of pattern mirrors include a plurality of mirrors, at least one {**Fig. 3, item 102**} of which is positioned and angled to reflect incident laser beams outwardly to scan the side of an article, at least a second {**Fig. 3, item 104**} of which is positioned and angled to reflect incident laser beams downward toward the top of an article, at least a third mirror {**Fig. 3, item 100**} of which is positioned and angled to reflect an incident laser downwardly and rearwardly to scan the leading edge of an article, and at least a fourth {**Fig. 3, item 106**} of which is positioned and angled to reflect an incident beam downwardly and forwardly to scan the trailing edge of an article.

45. An optical scanner as in claim 9 wherein:

the second group of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**} includes at least one mirror {**Fig. 3, item 76**} positioned and angled to reflect an incident beam in a substantially vertical direction to scan the bottom of the article and at least one mirror {**Fig. 3, item 74**} is positioned and angled to reflect an incident beam rearwardly to scan the forward side of the article.

46. A method of scanning an item {**Fig. 1, item 36**} having a bar code {**Fig. 1, item 34**} from multiple directions, comprising the steps of

generating laser light;

providing a single multi-faceted mirrored polygon {**Figs. 1, 3 and 4, item 16**} in a path of said laser light;

rotating the mirror polygon {**Figs. 1, 3 and 4, item 16**} and directing the laser light at the polygon, as it is rotating, to produce a laser beam {**Fig. 1, item 22**} reflected off each facet {**Fig. 3, items 108 to 114**} of the polygon;

generating a first group of scanning beams, a second group of scanning beams, and a third group of scanning beams by reflecting said laser light off said mirror polygon and then reflecting the laser light off groups of pattern mirrors;

generating the first group of scanning beams {**Fig. 8**} comprises directing the laser beam {**Fig. 1, item 22**} to a first set of pattern mirrors {**Fig. 3, items 64, 66, 70 and 72**}, reflecting the beam from those mirrors to a second set of pattern mirrors {**Fig. 3, items 82, 84, 86, 88, 90 and 94**} and reflecting the beam from those mirrors to at least one additional pattern mirror {**Fig. 3, item 104**};

directing said first group of scanning beams from said at least one additional mirror through a first transparent member {**Figs. 1 and 2, item 30**} oriented in a first plane to scan a surface of the item from one orthogonal direction to scan at least the top of an item;

generating the second plurality of scanning beams {**Fig. 7**} comprises directing the laser beam {**Fig. 1, item 22**} to a third set of pattern mirrors {**Fig. 3, items 62, 68, 70 and 72**}, reflecting the beam from those mirrors to a fourth set of pattern mirrors {**Fig. 3, items 80, 92, 96 and 98**} and reflecting the beam from those mirrors to a fifth set of pattern mirrors {**Fig. 3, items 100, 102 and 106**};

directing said second group of scanning beams from at least one mirror of said fifth set of mirrors directly outwardly through the first transparent member {**Figs. 1 and 2, item 30**} oriented in the first plane to scan one side of the item and from further mirrors of said fifth set of mirrors diagonally outwardly through the first transparent member

{**Figs. 1 and 2, item 30**} oriented in the first plane to scan the item from a diagonal direction to scan the front and rear sides of the item; and

generating the third plurality of scanning beams {**Fig. 6**} comprises directing the single laser beam {**Fig. 1, item 22**} to a sixth set of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58 and 60**}, reflecting the beam from those mirrors to a seventh set of pattern mirrors {**Fig. 3, items 74, 76 and 78**} and reflecting the beam from the mirrors of the seventh set,

directing said third group of scanning beams from said seventh set of mirrors through a second transparent member {**Figs. 1 and 2, item 28**} oriented in a second plane orthogonal to said first plane to scan the item from another orthogonal direction to scan at least the bottom of the item.

47. A method of scanning as in Claim 46 wherein

the first group of scanning beams {**Fig. 8**} is directed through the first transparent window {**Figs. 1 and 2, item 30**} in an outwardly and downwardly direction to scan the top of an item, and

the second group of scanning beams {**Fig. 7**} is directed through the first transparent window {**Figs. 1 and 2, item 30**} in at least a diagonally rearward direction and a

diagonally forward direction to scan the front and rear sides of an item.

48. A method of scanning as in claim 47 wherein

certain of the beams of the second group {**Fig. 7**} are directed through the first transparent window {**Figs. 1 and 2, item 30**} in a diagonally rearward direction to scan the front of an item, other beams of the second group are directed through the first transparent window {**Figs. 1 and 2, item 30**} in a diagonally forward direction to scan the back of an item and other beams of the second group are directed outwardly through the first transparent window {**Figs. 1 and 2, item 30**} in a generally lateral direction to scan the side of the item.

49. A method of scanning as in claim 46 where

at least certain of the third group of scanning beams {**Fig. 6**} is generated by directing the beam from the polygon {**Figs. 1, 3 and 4, item 16**} between mirrors of either the first or second set {**Fig. 3, items 64, 66, 70 and 72**} to the mirrors of the sixth set {**Fig. 3, items 50, 52, 54, 56, 58 and 60**}.

50. A method of scanning as in claim 46 wherein

scanning beams are directed through the first transparent window {**Figs. 1 and 2, item 30**} and through the second transparent window {**Figs. 1 and 2, item 28**} alternatingly, and this alternative operation occurs repeatedly, for beams originating from a single facet {**Fig. 3, items 108 to 114**} of the polygon, during each rotation of the polygon {**Figs. 1, 3 and 4, item 16**}.

51. A method of scanning as in claim 46 wherein

generating laser light comprises

generating a single laser beam {**Fig. 1, item 22**}, and only said single laser beam is reflected off each of the facets {**Fig. 3, items 108 to 114**} of the polygon {**Figs. 1, 3 and 4, item 16**}.

52. A method of scanning an item having a bar code {**Fig. 1, item 34**} from multiple directions, comprising the steps of

generating laser light in the form of a single laser beam {**Fig. 1, item 22**};

providing a single multi-faceted {**Fig. 3, items 108 to 114**} mirrored polygon {**Figs. 1, 3 and 4, item 16**} in a path of said single laser light beam {**Fig. 1, item 22**};

rotating the mirror polygon {**Figs. 1, 3 and 4, item 16**} and reflecting the single laser beam {**Fig. 1, item 22**} from each of the facets {**Fig. 3, items 108 to 114**} of the polygon, as the polygon is rotating, to form from the single laser beam a plurality of scanning beams that pass through both horizontal {**Figs. 1 and 2, item 28**} and vertical {**Figs. 1 and 2, item 30**} transparent members;

generating a first group of scanning beams, a second group of scanning beams, and a third group of scanning beams by reflecting said laser beam off said mirror polygon and then off groups of pattern mirrors;

generating the first group of scanning beams comprises directing the laser beam to a first set of pattern mirrors {**Fig. 3, items 62 and 68**}, reflecting the beam from those mirrors to a second set of pattern mirrors {**Fig. 3, items 96 and 98**} and reflecting the beam from those mirrors to at least one additional pattern mirror {**Fig. 3, item 102**};

directing said first group of scanning beams from said at least one additional mirror through a vertical transparent member {**Figs. 1 and 2, item 30**} oriented in a first plane to scan a surface of the item from one orthogonal direction;

generating the second plurality of scanning beams comprises directing the laser beam to a third set of pattern mirrors {**Fig. 3, items 70 and 72**}, reflecting the beam from those mirrors to a fourth set of pattern mirrors {**Fig. 3, items 80 and 92**} and reflecting the beam from those mirrors to at least one further mirror {**Fig. 3, items 100 and 106**};

directing said second group of scanning beams from said at least one further mirror through the vertical transparent member {**Figs. 1 and 2, item 30**} oriented in the first plane to scan the item from a diagonal direction to scan at least one side of the item; and

generating the third plurality of scanning beams comprises directing the laser beam to a fifth set of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58 and 60**}, reflecting the beam from those mirrors to a sixth set of pattern mirrors {**Fig. 3, items 74, 76 and 78**} and reflecting the beam from the mirrors of the sixth set,

directing said third group of scanning beams from said sixth set of mirrors through a horizontal transparent member {**Figs. 1 and 2, item 28**} oriented in a second plane orthogonal to said first plane to scan the item from another orthogonal direction.

53. A method of scanning as in Claim 52 wherein

the first group of scanning beams {**Fig. 8**} is directed through the first transparent window {**Figs. 1 and 2, item 30**} in an outwardly and downwardly direction to scan the top of an item, and

the second group of scanning beams {**Fig. 7**} is directed through the first transparent window {**Figs. 1 and 2, item 30**} in a diagonally rearward direction to scan the front of an item.

54. A method of scanning as in claim 53 wherein

certain of the beams {**Fig. 7**} of the second group are directed through the first transparent window {**Figs. 1 and 2, item 30**} in a diagonally rearward direction to scan the front of an item, and other beams {**Fig. 7**} of the second group are directed through the first transparent window {**Figs. 1 and 2, item 30**} in a diagonally forward direction to scan the back of an item.

55. A scanner as in claim 52 wherein

scan lines are directed through the first transparent window {**Figs. 1 and 2, item 30**} and through the second transparent window {**Figs. 1 and 2, item 28**}

alternatingly, and this alternative operation occurs repeatedly, for beams originating from a single facet {**Fig. 3, items 108 to 114**} of the polygon {**Figs. 1, 3 and 4, item 16**}, during each rotation of the polygon.

56. An optical scanner comprising:

a housing {**Figs. 1 and 2, item 32; Fig. 4**} having a substantially vertical surface containing a first aperture {**Figs. 1 and 2, item 30**} and a substantially horizontal surface containing a second aperture {**Figs. 1 and 2, item 28**};

a single laser {**Figs. 1 and 4, item 12**} which produces a laser beam {**Fig. 1, item 22**} within the housing;

a plurality of groups of pattern mirrors {**Fig. 3, items 50 to 106**};

a polygon spinner {**Figs. 1, 3 and 4, item 16**} having mirrored facets {**Fig. 3, items 108 to 114**} receiving the laser beam {**Fig. 1, item 22**} and rotating to reflect the laser beam in a plurality of directions as the spinner rotates,

the reflected laser beam striking the pattern mirrors to produce a plurality of scanning beams including a first group of scanning beams, a second group of scanning beams, and a third group of scanning beams;

a first group of pattern mirrors {**Fig. 3, items 62, 64, 66, 68, 70, 72, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104 and 106**} reflecting the first group of

scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a first scan pattern consisting of a plurality of intersecting scan lines {**Fig. 8**} and for reflecting the second group of scanning beams through the first aperture {**Figs. 1 and 2, item 30**} to produce a second scan pattern {**Fig. 7**} consisting of a plurality of intersecting scan lines;

a second group of pattern mirrors {**Fig. 3, items 50, 52, 54, 56, 58, 60, 74, 76 and 78**} reflecting the third group of scanning beams through the second aperture {**Figs. 1 and 2, item 28**} to produce a third scan pattern {**Fig. 6**} consisting of a plurality of intersecting scan lines; and

the polygon spinner {**Figs. 1, 3 and 4, item 16**} having four facets {**Fig. 3, items 108 to 114**}, two of the facets being angled at angles closer to their respective opposite facets than to their two adjacent facets, and

the beam from one pair of opposite facets {**Fig. 3, items 108 and 110**} of the polygon spinner striking one set of mirrors {**Fig. 3, items 62, 64, 66, 68, 70, 72, 82, 86, 88, 96, 98, 102 and 104**} of the first group, and the beam from the other pair of opposite facets {**Fig. 3, items 112 and 114**} striking a different set of mirrors of the first group {**Fig. 3, items 64, 66, 70, 72, 80, 84, 90, 92, 100, 104 and 106**}.

57. An optical scanner as in claim 56 comprising

a single laser {**Figs. 1 and 4, item 12**} which produces a single laser beam {**Fig. 1, item 22**}, and

a polygon spinner {**Figs. 1, 3 and 4, item 16**} that receives just the single laser beam {**Fig. 1, item 22**}.

58. A method of scanning an item having a bar code {**Fig. 1, item 34**} from multiple directions, comprising the steps of

generating laser light;

providing a single multi-faceted mirrored polygon {**Figs. 1, 3 and 4, item 16**} in a path of said laser light;

constructing the mirrored polygon {**Figs. 1, 3 and 4, item 16**} to have four facets {**Fig. 3, items 108 to 114**}, two of the facets being angled at angles closer to their respective opposite facets than to their two adjacent facets,

rotating the mirrored polygon {**Figs. 1, 3 and 4, item 16**} and directing the laser light at the polygon, as it is rotating, to produce a laser beam reflected off each facet {**Fig. 3, items 108 to 114**} of the polygon;

generating a first group of scanning beams, a second group of scanning beams, and a third group of scanning beams by reflecting said laser light off said mirrored polygon and then reflecting the laser light off groups of pattern mirrors;

generating the first group of scanning beams comprises directing the laser beam from one pair of opposite facets of the mirrored polygon to a first set of pattern mirrors,

directing said first group of scanning beams from the first set of pattern mirrors {**Fig. 3, items 64, 66, 70, 72, 82, 84, 86, 88, 90, 94 and 104**} through a first transparent member {**Figs. 1 and 2, item 30**} oriented in a first plane to scan a surface of the item from one orthogonal direction;

generating the second plurality of scanning beams comprises directing the laser beam from the second pair of opposite facets of the mirrored polygon to a second set of pattern mirrors,

directing said second group of scanning beams from the second set of pattern mirrors {**Fig. 3, items 70, 72, 80, 92, 100 and 106**} through the first transparent member {**Figs. 1 and 2, item 30**} oriented in the first plane to scan the item from a diagonal direction;

generating the third plurality of scanning beams comprises directing the single laser beam to a third set of pattern mirrors, and

directing said third group of scanning beams from said third set of pattern mirrors {**Fig. 3, items 50, 52, 54, 56 and 76**} through a second transparent member oriented {**Figs.**